EPA

Department of Toxic Substances Control

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Pete Wilson Governor

Peter M. Rooney Secretary for Environmental Protection

May 18, 1998

Commanding Officer
Engineering Field Activity, West
Naval Facilities Engineering Command
Attn: Mr. George Kikugawa, Code 1831.2
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ALAMEDA POINT, ALAMEDA, CALIFORNIA: WORK PLAN DRAFT FINAL ALAMEDA NAVAL AIR STATION, BUILDINGS 5 AND 400 CONTAMINATED DRAIN PIPING REMOVAL (WP NO. NASA-1, REVISION 1; APRIL 8, 1998); WORK PLAN DRAFT FINAL NAVAL AIR STATION ALAMEDA, LANDFILL 1 AND 2 (IR SITES 1 AND 2) RADIOLOGICIAL SURVEYS AND ANOMALY REMOVAL (WP NO. NASA-2, REVISION 1; APRIL 10, 1998)

Dear Mr. Kikugawa:

The Department of Toxic Substances Control (DTSC), in conjunction with the Department of Health Services (DHS), has reviewed two documents:

(1) Work Plan Draft Final Alameda Naval Air Station, Building 5 and 400 Contaminated Drain Piping Removal (WP No. NASA-1, Revision 1), dated April 8, 1998;

(2) Work Plan Draft Final Naval Air Station Alameda, Landfill 1 and 2 (IR Sites 1 and 2) Radiological Surveys and Anomaly Removal (WP No. NASA-2, Revision 1), dated April 10, 1998.

DTSC and DHS believe it would be beneficial to SSPORTS Environmental Detachment to obtain documentation supporting the quality of their radium analyses, because future projects may also require such analyses. An audit of the laboratory by a qualified

third party using the checklist from U.S. EPA (QA/G-5; enclosed) could be used to demonstrate that all aspects of quality assurance are adequately addressed. Specific items pertaining to radiochemistry are included.

DTSC approval of this removal action is pending. When the removal action is approved, please coordinate with DHS so that DHS staff may perform independent surveys and sample collection.

Specific comments are enclosed. If you have any questions regarding this letter, please contact me at (510)540-3814.

Sincerely,

Mary Rose Cassa

Mary Rose Cassa, R.G.
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Office of Military Facilities

enclosure

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DEPARTMENT OF HEALTH SERVICES REVIEW

ACTIVITY: ***Review of Work Plan for Alameda Naval Air Station, Building 5 and 400 Contaminated Drain Piping Removal, Revision 1 (WP No. NASA-1)***, dated April 8, 1998 (DTSC/DHS Work Form #383)

FACILITY: Alameda Point (formerly Alameda Naval Air Station), Alameda, CA

GENERAL COMMENTS:

1) Although not a requirement for this removal action, it would be beneficial to SSPORTS Environmental Detachment to have documentation supporting the quality of their radium analyses since future projects may require them. An audit of the laboratory by a qualified third party using the checklist from EPA QA/G-5 (attached) could be used to demonstrate all aspects of quality assurance are adequately addressed. The following items specific to radiochemistry are also recommended to be covered in the laboratory quality assurance manual:

   a) Use of NIST Traceable Standards for Calibration Standards
   b) Instrument Calibration:
      i) Tolerance Charts
      ii) Statistical QC Charts
      iii) Efficiency and Background Control Charts
      iv) Geometry and Calibration matrix Controls
      v) Recalibration Schedules
      vi) Background Subtraction Controls
   c) Laboratory QA/QC Control Samples (internal)
      i) Duplicates
      ii) Matrix Spikes
      iii) Method Blanks
   d) Gamma Spectrometry Library Verification
   e) Radioanalytical Specifications and Methods
   f) Holding Times for Daughter ingrowth
   g) Formulas for sample activity, MDC, MDA, counting uncertainty, total propagated uncertainty
   h) Personnel Training and Qualifications
   i) Participation in Performance Evaluation Programs
   j) Audit Frequencies and by whom
   k) Data Validation Procedures
   l) Records Management

2) Figures 4 & 5 need to be revised to more clearly show the pipes that will be removed.

3) DHS will be performing independent surveys and sample collection during this removal action. Therefore, DHS requests notification prior to any replacement of piping that would limit access to pipe internals.

APPENDIX C

CHECKLISTS USEFUL IN QUALITY ASSURANCE REVIEW

This appendix contains three checklists:

C.1 Sample Handling, Preparation, and Analysis Checklist
C.2 QAPP Review Checklist
C.3 Chain-of-Custody Checklist

These three checklists were developed as tools for quality assurance (QA) managers to screen for completeness of documentation. This appendix was not intended to be used or adapted for auditing purposes. The items listed on the checklists are not ranked or identified to indicate which items are trivial and which are of major importance. When using these checklists, it is extremely important to ensure that a mechanism be established for assessing and addressing important comments or violations during the data assessment (e.g., Data Quality Assessment [DQA]) stage.

C1. SAMPLE HANDLING, PREPARATION, AND ANALYSIS CHECKLIST

This checklist covers most of the appropriate elements performed during the analysis of environmental samples. Functions not appropriate for a specific analysis should be annotated.

Information on the collection and handling of samples should be completely documented to allow the details of sample collection and handling to be re-created. All information should be entered in ink at the time the information was generated in a permanently bound logbook. Errors should not be erased or crossed-out but corrected by putting a line through the erroneous information and by entering, initialing, and dating the correct information. Blank spaces should have an obliterating line drawn through to prevent addition of information. Each set of information should have an identifying printed name, signature, and initials.

Sample Handling

• Field Logs	Documentation of events occurring during field sampling to identify individual field samples.
• Sample Labels	Links individual samples with the field log and the chain-of-custody record.
• Chain-of-Custody Records	Documentation of exchange and transportation of samples from the field to final analysis.
• Sample Receipt Log	Documentation of receipt of the laboratory or organization of the entire set of individual samples for analysis.

Sample Preparation and Analysis

• Sample Preparation Log	Documents the preparation of samples for a specific method.
• Sample Analysis Log	Records information on the analysis of analytical results.
• Instrument Run Log	Records analyses of calibration standards, field samples, and quality control (QC) samples.

Chemical Standards

• Chemical Standard Receipt Log	Records receipt of analytical standards and chemicals.
• Standards/Reagent Preparation Log	Records of the preparation of internal standards, reagents, spiking solutions, surrogate solutions, and reference materials.

C.1 SAMPLE HANDLING, REPORTING, AND ANALYSIS CHECKLIST

Field Logs

ELEMENT	COMMENT
Project name/ID and location	
Sampling personnel	
Geological observations including map	
Atmospheric conditions	
Field measurements	
Sample dates, times, and locations	
Sample identifications present	
Sample matrix identified	
Sample descriptions (e.g., odors and colors)	
Number of samples taken per location	
Sampling method/equipment	
Description of any QC samples	
Any deviations from the sampling plan	
Difficulties in sampling or unusual circumstances	

Sample Labels

ELEMENT	COMMENT
Sample ID	
Date and time of collection	
Sampler's signature	
Characteristic or parameter investigated	
Preservative used	

Chain of Custody Records

ELEMENT	COMMENT
Project name/ID and location	
Sample custodian signatures verified and on file	
Date and time of each transfer	
Carrier ID number	
Integrity of shipping container and seals verified	
Standard Operating Procedures (SOPs) for receipt on file	
Samples stored in same area	
Holding time protocol verified	
SOPs for sample preservation on file	
Identification of proposed analytical method verified	
Proposed analytical method documentation verified	
QA Plan for proposed analytical method on file	

C.1 SAMPLE HANDLING, REPORTING, AND ANALYSIS CHECKLIST (CONTINUED)

Sample Receipt Log

ELEMENT	COMMENT
Date and time of receipt	
Sample collection date	
Client sample ID	
Number of samples	
Sample matrices	
Requested analysis, including method number(s)	
Signature of the sample custodian or designee	
Sampling kit code (if applicable)	
Sampling condition	
Chain-of-custody violations and identities	

SAMPLE PREPARATION AND ANALYSIS

Sample Preparation Logs

ELEMENT	COMMENT
Parameter/analyte of investigation	
Method number	
Date and time of preparation	
Analyst's initials or signature	
Initial sample volume or weight	
Final sample volume	
Concentration and amount of spiking solutions used	
QC samples included with the sample batch	
ID for reagents, standards, and spiking solutions used	

Sample Analysis Logs

ELEMENT	COMMENT
Parameter analyte of investigation	
Method number/reference	
Date and time of analysis	
Analyst's initials or signature	
Laboratory sample ID	
Sample aliquot	
Dilution factors and final sample volumes (if applicable)	
Absorbance values, peak heights, or initial concentrations reading	
Final analyte concentration	
Calibration data (if applicable)	
Correlation coefficient (including parameters)	
Calculations of key quantities available	
Comments on interferences or unusual observations	
QC information, including percent recovery	

C.1 SAMPLE HANDLING, REPORTING, AND ANALYSIS CHECKLIST (CONTINUED)

Instrument Run Logs

ELEMENT	COMMENT
Name/type of instrument	
Instrument manufacturer and model number	
Serial number	
Date received and date placed in service	
Instrument ID assigned by the laboratory (if used)	
Service contract information, including service representative details	
Description of each maintenance or repair activity performed	
Date and time when of each maintenance or repair activity	
Initials of maintenance or repair technicians	

CHEMICAL STANDARDS

Chemical/Standard Receipt Logs

ELEMENT	COMMENT
Laboratory control number	
Date of receipt	
Initials or signature of person receiving chemical	
Chemical name and catalog number	
Vendor name and log number	
Concentration or purity of standard	
Expiration date	

Standards/Reagent Preparation Log

ELEMENT	COMMENT
Date of preparation	
Initials of analyst preparing the standard solution or reagent	
Concentration or purity of standard or reagent	
Volume or weight of the stock solution or neat materials	
Final volume of the solution being prepared	
Laboratory ID/control number assigned to the new solution	
Name of standard reagent	
Standardization of reagents, titrants, etc. (if applicable)	
Expiration date	

References

1. Roserance, A. and L. Kibler. 1994. "Generating Defensible Data," *Environmental Testing and Analysis.* May/June.
2. Roserance, A. and L. Kibler. 1996. "Documentation and Record Keeping Guidelines." In *Proceedings of the 12th Annual Waste Testing and Quality Assurance Symposium*. July.

C.2 QAPP REVIEW CHECKLIST

ELEMENT	COMMENTS
A1. Title and Approval Sheet	
Title	
Organization's name	
Dated signature of project manager	
Dated signature of quality assurance officer	
Other signatures, as needed	
A2. Table of Contents	
A3. Distribution List	
A4. Project/Task Organization	
Identifies key individuals, with their responsibilities (data users, decision-makers, project QA manager, subcontractors, etc.)	
Organization chart shows lines of authority and reporting responsibilities	
A5. Problem Definition/Background	
Clearly states problem or decision to be resolved	
Provides historical and background information	
A6. Project/Task Description	
Lists measurements to be made	
Cites applicable technical, regulatory, or program-specific quality standards, criteria, or objectives	
Notes special personnel or equipment requirements	
Provides work schedule	
Notes required project and QA records/reports	
A7. Quality Objectives and Criteria for Measurement Data	
States project objectives and limits, both qualitatively and quantitatively	
States and characterizes measurement quality objectives as to applicable action levels or criteria	
A8. Special Training Requirements/Certification Listed	
States how provided, documented, and assured	
A9. Documentation and Records	
Lists information and records to be included in data report (e.g., raw data, field logs, results of QC checks, problems encountered)	
States requested lab turnaround time	
Gives retention time and location for records and reports	
B1. Sampling Process Design (Experimental Design) States the following:	
Type and number of samples required	
Sampling design and rationale	
Sampling locations and frequency	
Sample matrices	

C.2 QAPP REVIEW CHECKLIST (CONTINUED)

ELEMENT	COMMENTS
Classification of each measurement parameter as either critical or needed for information only	
Appropriate validation study information, for nonstandard situations	
B2. Sampling Methods Requirements	
Identifies sample collection procedures and methods	
Lists equipment needs	
Identifies support facilities	
Identifies individuals responsible for corrective action	
Describes process for preparation and decontamination of sampling equipment	
Describes selection and preparation of sample containers and sample volumes	
Describes preservation methods and maximum holding times	
B3. Sample Handling and Custody Requirements	
Notes sample handling requirements	
Notes chain-of-custody procedures, if required	
B4. Analytical Methods Requirements	
Identifies analytical methods to be followed (with all options) and required equipment	
Provides validation information for nonstandard methods	
Identifies individuals responsible for corrective action	
Specifies needed laboratory turnaround time	
B5. Quality Control Requirements	
Identifies QC procedures and frequency for each sampling, analysis, or measurement technique, as well as associated acceptance criteria and corrective action	
References procedures used to calculate QC statistics including precision and bias/accuracy	
B6. Instrument/Equipment Testing, Inspection, and Maintenance Requirements	
Identifies acceptance testing of sampling and measurement systems	
Describes equipment preventive and corrective maintenance	
Notes availability and location of spare parts	
B7. Instrument Calibration and Frequency	
Identifies equipment needing calibration and frequency for such calibration	
Notes required calibration standards and/or equipment	
Cites calibration records and manner traceable to equipment	
B8. Inspection/Acceptance Requirements for Supplies and Consumables	
States acceptance criteria for supplies and consumables	
Notes responsible individuals	
B9. Data Acquisition Requirements for Nondirect Measurements	
Identifies type of data needed from nonmeasurement sources (e.g., computer databases and literature files), along with acceptance criteria for their use	

C.2 QAPP REVIEW CHECKLIST (CONTINUED)

ELEMENT	COMMENTS
Describes any limitations of such data	
Documents rationale for original collection of data and its relevance to this project	
B10. Data Management	
Describes standard record-keeping and data storage and retrieval requirements	
Checklists or standard forms attached to QAPP	
Describes data handling equipment and procedures used to process, compile, and analyze data (e.g., required computer hardware and software)	
Describes process for assuring that applicable Office of Information Resource Management requirements are satisfied	
C1. Assessments and Response Actions	
Lists required number, frequency and type of assessments, with approximate dates and names of responsible personnel (assessments include but are not limited to peer reviews, management systems reviews, technical systems audits, performance evaluations, and audits of data quality)	
Identifies individuals responsible for corrective actions	
C2. Reports to Management Identifies frequency and distribution of reports for:	
Project status	
Results of performance evaluations and audits	
Results of periodic data quality assessments	
Any significant QA problems	
Preparers and recipients of reports	
D1. Data Review, Validation, and Verification	
States criteria for accepting, rejecting, or qualifying data	
Includes project-specific calculations or algorithms	
D2. Validation and Verification Methods	
Describes process for data validation and verification	
Identifies issue resolution procedure and responsible individuals	
Identifies method for conveying these results to data users	
D3. Reconciliation with User Requirements	
Describes process for reconciling project results with DQOs and reporting limitations on use of data	

References

Personal Communication, Margo Hunt, EPA Region II, February, 1996.
Personal Communication, Robert Dona, EPA Region VII, November, 1997.

C.3 CHAIN-OF-CUSTODY CHECKLIST

Item	Y	N	Comment
1. Is a sample custodian designated? If yes, name of sample custodian.			
2. Are the sample custodian's procedures and responsibilities documented? If yes, where are these documented?			
3. Are written Standard Operating Procedures (SOPs) developed for receipt of samples? If yes, where are the SOPs documented (laboratory manual, written instructions, etc.)?			
4. Is the receipt of chain-of-custody record(s) with samples being documented? If yes, where is this documented?			
5. Is the nonreceipt of chain-of-custody record(s) with samples being documented? If yes, where is this documented?			
6. Is the integrity of the shipping container(s) being documented (custody seal(s) intact, container locked, or sealed properly, etc.)? If yes, where is security documented?			
7. Is the lack of integrity of the shipping container(s) being documented (i.e., evidence of tampering, custody seals broken or damaged, locks unlocked or missing, etc.)? If yes, where is nonsecurity documented?			
8. Is agreement between chain-of-custody records and sample tags being verified and documented? If yes, state source of verification and location of documentation.			
9. Are sample tag numbers recorded by the sample custodian? If yes, where are they recorded?			
10. Are written SOPs developed for sample storage? If yes, where are the SOPs documented (laboratory manual, written instructions, etc.)?			
11. Are samples stored in a secure area? If yes, where and how are they stored?			
12. Is sample identification maintained? If yes, how?			
13. Is sample extract (or inorganics concentrate) identification maintained? If yes, how?			
14. Are samples that require preservation stored in such a way as to maintain their preservation? If yes, how are the samples stored?			

C.3 CHAIN-OF-CUSTODY CHECKLIST (CONTINUED)

Item	Y	N	Comment
15. Based upon sample records examined to determine holding times, are sample holding time limitations being satisfied? Sample records used to determine holding times:			
16. Are written SOPs developed for sampling handling and tracking? If yes, where are the SOPs documented (laboratory manual, written instructions, etc.)?			
17. Do laboratory records indicate personnel receiving and transferring samples in the laboratory? If yes, what laboratory records document this?			
18. Does each instrument used for sample analysis (GC, GC/MS, AA, etc.) have an instrument log? If no, which instruments do not?			
19. Are analytical methods documented and available to the analysts? If yes, where are these documented?			
20. Are QA procedures documented and available to the analysts? If yes, where are these documented?			
21. Are written SOPs developed for compiling and maintaining sample document files? If yes, where are the SOPs documented (laboratory manual, written instructions, etc.)?			
22. Are sample documents filed by case number? If no, how are documents filed?			
23. Are sample document files inventoried?			
24. Are documents in the case files consecutively numbered according to the file inventories?			
25. Are documents in the case files stored in a secure area? If yes, where and how are they stored?			
26. Has the laboratory received any confidential documents?			
27. Are confidential documents segregated from other laboratory documents? If no, how are they filed?			
28. Are confidential documents stored in a secure manner? If yes, where and how are they stored?			
29. Was a debriefing held with laboratory personnel after the audit was completed?			
30. Were any recommendations made to laboratory personnel during the debriefing?			